

The Current Status of OR in Africa

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Extended Abstract:

1. Introduction

There has been very little penetration of Operations Research (OR) into the African continent. Over the last ten years or so both the International Federation of Operations Research Societies (IFORS) and the European Association of Operational Research Society (EURO) were involved in initiatives to stimulate the interest in and promote the use of OR on the African continent. There were also educational type efforts during this period. Currently there are only three OR societies in Africa that are members of IFORS. Africa, with a total of 54 countries, is thus a fertile ground for OR. IFORS is keen to expand and grow its reach across Africa and the world. At present IFORS have 51 member countries of which only 3 are from Africa. This continent thus has about half the number of countries, worldwide, that are not members of IFORS.

Towards the end of 2016 a very exciting initiative was launched here in Africa when representatives from various African OR societies and other interested operations researchers met in Nairobi, Kenya. A summit, the Pan African Operations Research Society Summit was held in the Lukenya Getaway Hotel Nairobi from 2-5 November, 2016 to discuss the formation of an African OR grouping. The outcome of the summit was the establishment of the **African FedeRation of Operations research Societies (AFROS)**.

Given all these initiatives this presentation is aimed at giving a view on the current status of OR in Africa as well as an overview of OR activities over the past twenty, thirty years in African countries. What is happening with OR across Africa? Is it known in the various African countries? Is it taught at all the African universities and if not all where it is taught? Is OR actually used and implemented to solve many of the complex problems that is facing people, companies, organisations as well as countries in Africa? The goal is to get a more informed view of what the state of the discipline is within the 54 countries across the continent.

The outline of the presentation is to initially give a high level overview of OR on the entire continent. The focus then shifts to established OR societies and their activities as well as OR groupings and networks. Other African related OR activities of the past and planned future initiatives will be highlighted. Ultimately the presentation will endeavour to cover all countries in this huge continent as best as possible.

2. Established OR Societies in Africa

There are a number of formal and established OR societies in Africa. These include the oldest the Operations Research Society of South Africa (ORSSA) and the societies in Tunisia (TORS), Nigeria (INFORN) and the three Eastern African countries Kenya, Tanzania and Uganda (ORSEA). Each of

these have a variety of activities and these include newsletters, journals, websites, conferences, etc. These will be elaborated on in full as best as possible. An effort will be made to indicate the wide use, or not, of OR in these countries. It is interesting to note that since the last quarter of last year Zimbabwe joined the South Africa society, ORSSA, as a chapter. All the members from Zimbabwe share in the benefits of ORSSA while the members in this country are in the process of establishing their own society.

The three societies ORSSA, TORS and INFORN are currently members of IFORS. TORS was an IFORS member in the past for a period, it lapsed but the returned to the IFORS fold.

Egypt had an OR society many years ago and it was also a member of IFORS. It appears that this society does no longer exist. It is not exactly clear what is happening with organized OR in that country. The Egypt society also lost its membership of IFORS some years ago already. Over and above Zimbabwe there are other African countries such as Benin, Morocco and Algeria where there are and have been efforts to establish societies.

3. Countries with known and some OR activities

There are a fair number of countries on the continent that are very active in OR and where it appears as if OR is flourishing. Morocco, Algeria and Senegal are such countries where highly successful OR conferences have taken place on a regular basis. In addition there are universities offering OR at graduate and post graduate level in these countries. The quality and standard of the work presented by students at these conferences are of a high standard and level. In addition to the activities in these three countries, OR conferences have been held elsewhere in other French speaking African countries involving people from West and Central African countries such as Burkina Faso, Cameroon, Benin, the DRC, Mali, Niger, Chad, Nigeria, Senegal, etc.

4. OR groupings and Networks in Africa

The African Operations Research Network (AORN) was established as part of the "Africa Project" initiative of the EURO (European Association of Operational Research Societies), a project which aimed at promoting Operational Research (OR) in Africa (see <https://www.euro-online.org/africanOR/EnglishFrame.htm>). AORN had some 62 members at the time it was established in 2003. The memberships ranged from countries such as Nigeria(18), Zambia(3), Kenya(10), Mozambique(3), Zimbabwe(6), Ghana(2), Algeria (5), Tanzania(2), Tunisia(4), Namibia(2), Morocco(3) and 1 each from Lesotho, Uganda, Botswana, Congo.

Another effort to promote OR was the Operational Research Practice in Africa (ORPA) initiative. ORPA is an initiative aimed at promoting the use of operational research approaches in decision-making processes in Africa. This imply actions in the continent to promote OR uses and research but also to share experiences, take good practices wherever they are located with the idea of concrete applications in the continent. The 1st ORPA conference in Ouagadougou, Burkina Faso in 2005 was supported by IFORS and EURO. Subsequent ORPAs had since been held in London, Cape Town, Washington, Dakar and Algiers. This is an initiative that has been used very successfully in promoting OR across Africa.

5. ICORD conference held in Africa

IFORS has an initiative aimed at developing countries in general and not focused solely on Africa. This was an initiative that originated from the IFORS conference in 1987 held in Buenos Aires,

Argentina. This led to the establishment of the International Conference on Operational Research for Development (ICORD), an “instrument” and initiative of IFORS. The 1st ICORD was held at the Indian Institute of Management in Ahmedabad, India in December 1992. The aim was to provide a forum for intensive discussion and exchange of experiences of various researchers dealing with OR in developing countries and OR for development. The 4th ICORD conference was held from 16 to 18 May 2001 in the Kruger National Park, South Africa. This was a very successful conference and it is at this conference that the first seeds were planted for the establishment of ORSEA – the Eastern Africa Operations Research Society.

6. Countries with Limited or No known OR activities

There are limited known OR activities in countries such as Swaziland, Namibia, Zambia and Eritrea. There are possibly others as well however there is possibly no information available about this or if there is information it is very difficult to obtain. In many countries that have not been mentioned it is either very difficult to find any reference to such OR activities or there are just nothing happening around OR in those countries.

7. Conclusions

OR activities in Africa are diverse across the continent. It has taken years to get to a point where a number of countries and individuals are now taking the step of establishing an entity that will represent the OR interest across Africa – the AFROS initiative. This is a great initiative that holds promise for the future of OR in Africa. There are many countries where there are known and sufficient interests, activities, etc. around OR that would justify the formation of more societies. These countries should be encouraged to take the necessary steps towards more formal structures. It is about time OR in Africa has a mechanism to not just promote the discipline across Africa but also to focus on ways and means of assisting in addressing African specific problems.

This presentation is aimed at giving an up-to-date view of the status of OR in Africa. It is envisaged that that it can be used as the basis for taking decisions about how best to promote the interest in OR and how best to deploy limited resources available for this purpose.

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